COVER SHEET

Public Review Draft – April 2004

Title of Environmental Review:	Environmental Assessment of a National Marine Fisheries Service (NMFS) Action to Issue Incidental Take Permit 1481 to the Idaho Department of Fish and Game (IDFG) under Section 10(a)(1)(B) of the Endangered Species Act
Evolutionarily Significant Units:	Snake River Spring/Summer Chinook Salmon, Snake River Fall Chinook Salmon, Snake River Sockeye Salmon, and Snake River Steelhead
Responsible Agency and Official:	D. Robert Lohn NOAA – National Marine Fisheries Service 7600 Sand Point Way N.E. Seattle, WA 98115
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Legal Mandate:	Endangered Species Act of 1973, as amended and implemented – 50 CFR Part 223
Location of Proposed Activities:	Idaho, Snake River Basin
Activity Considered:	NMFS' action of issuing a permit to IDFG for the incidental take of ESA-listed anadromous fish under the jurisdiction of NMFS associated with proposed recreational fisheries that target unlisted, hatchery produced anadromous salmon and steelhead and resident game fish species in the Snake River basin of Idaho.

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1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 Background

NOAA's National Marine Fisheries Service (NMFS) is the lead agency responsible for administering the ESA as it relates to listed salmon and steelhead. Actions that may affect listed species are reviewed by NMFS under section 7 or section 10 of the ESA or under section 4(d), which can be used to limit the take prohibitions described in section 9. Under section 10(a)(1)(B) of the Endangered Species Act (ESA), non-Federal entities may apply for permits from NMFS to take ESA-listed species under the jurisdiction of NMFS if such taking is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Under the ESA, the permit shall be issued if NMFS finds: (1) the taking will be incidental; (2) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking; (3) the applicant will ensure that adequate funding for the conservation plan will be provided; (4) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and (5) any other measures that the Secretary may require as being necessary or appropriate will be met. The action considered in this Environmental Assessment is the issuance of a section 10(a)(1)(B) permit.

On February 25, 2004, the Idaho Department of Fish and Game (IDFG) submitted an application to NMFS for an ESA section 10(a)(1)(B) permit for incidental take of ESA-listed anadromous fish species associated with three recreational fishery programs to be conducted in the Snake River and its tributaries for a 5-year period (the application was originally submitted in December 2003, then re-submitted with some changes). NMFS proposes to issue a permit to cover the period from June 1, 2004, until May 31, 2009. The fisheries that are subject to this permit are ongoing activities, which have been the subject of a series of ESA section 10(a)(1)(B) permits including: permit 844, issued on May 20, 1993; permit 1150, issued on May 28, 1999; and permit 1233, issued on May 26, 2000. Each of these permits was modified or reauthorized annually to reflect changes in fishery regulations and interannual variation in anadromous fish adult returns. NMFS now finds it appropriate to consider issuance of permit 1481 to accommodate proposed changes in anadromous chinook salmon regulations and to consolidate a number of evolutionary modifications in the series of permits. The fisheries are described in the permit application for the previous permit (IDFG 1999). The fisheries would target non-listed spring and summer chinook salmon, non-listed hatchery-produced steelhead, and resident game fish species. No fisheries that would target listed species are proposed in this application. Implementation of these fisheries would allow fishing for recreational purposes and would provide economic opportunity for local communities through the sale of licenses and equipment, and the conduct of other business and services related to recreational fisheries.

The application submitted by IDFG provides a description of the proposed fisheries and an analysis of the impacts of the actions on listed species.

Implementation of recreational fisheries in these waters is consistent with the Policy for Conserving Species Listed or Proposed for Listing Under the Endangered Species Act While Providing and Enhancing Recreational Fisheries Opportunities (61 FR 27978), which was jointly issued by NMFS and the U.S. Fish and Wildlife Service (USFWS) on June 3, 1996. This policy was issued pursuant to Presidential Executive Order 12962, issued on June 7, 1995. That order requires Federal agencies, to the extent permitted by law, and where practicable and in cooperation with States and Tribes, to improve the quality, function, sustainable productivity, and distribution of aquatic resources for increased recreational fishing opportunity. Among other actions, the order requires all Federal agencies to aggressively work to promote compatibility and reduce conflict between administration of the ESA and recreational fisheries.

The purpose of this environmental assessment (EA) is to evaluate the potential environmental effects as a consequence of the NMFS action of issuing a permit to IDFG for the incidental take of ESA-listed anadromous fish under the jurisdiction of NMFS associated with the proposed fisheries.

NMFS seeks to consider, through NEPA analysis, how its pending action might affect the natural and physical environment and the relationship of people with that environment. NMFS is also required to review compliance of ESA actions with other applicable laws and regulations. The NEPA analysis provides an opportunity to consider, for example, how the action may affect conservation of non-listed species, socioeconomic objectives that seek to balance conservation with wise use of affected resources, and other legal and policy mandates.

1.2 Description of the Proposed Action

NMFS proposes to issue ESA section 10(a)(1)(B) incidental take permit 1481 to IDFG for the conduct of recreational fisheries in the Snake River and its tributaries, downstream from Hells Canyon Dam on the Snake River, and downstream from Dworshak Dam on the North Fork Clearwater River (Figure 1). Three types of recreational fisheries that are anticipated to occur in the Snake River Basin within Idaho between the issuance of this permit in 2004 and May 31, 2009, are considered in this EA, including: (1) Resident Fish Species Sport Fishing, conducted under General Fishing Regulations; (2) Anadromous Salmon Sport Fishing, conducted under Anadromous Salmon Fishing Regulations; and (3) Spring and Fall Steelhead Sport Fishing, conducted under Steelhead Fishing Regulations.

The scope of the action considered here includes only the authorization of incidental take in recreational fisheries as conducted by the IDFG, the agency responsible for fishery management within the State of Idaho.

The proposed fisheries are expected to primarily affect Snake River spring/summer chinook salmon and Snake River Basin steelhead listed as threatened under the ESA. However,

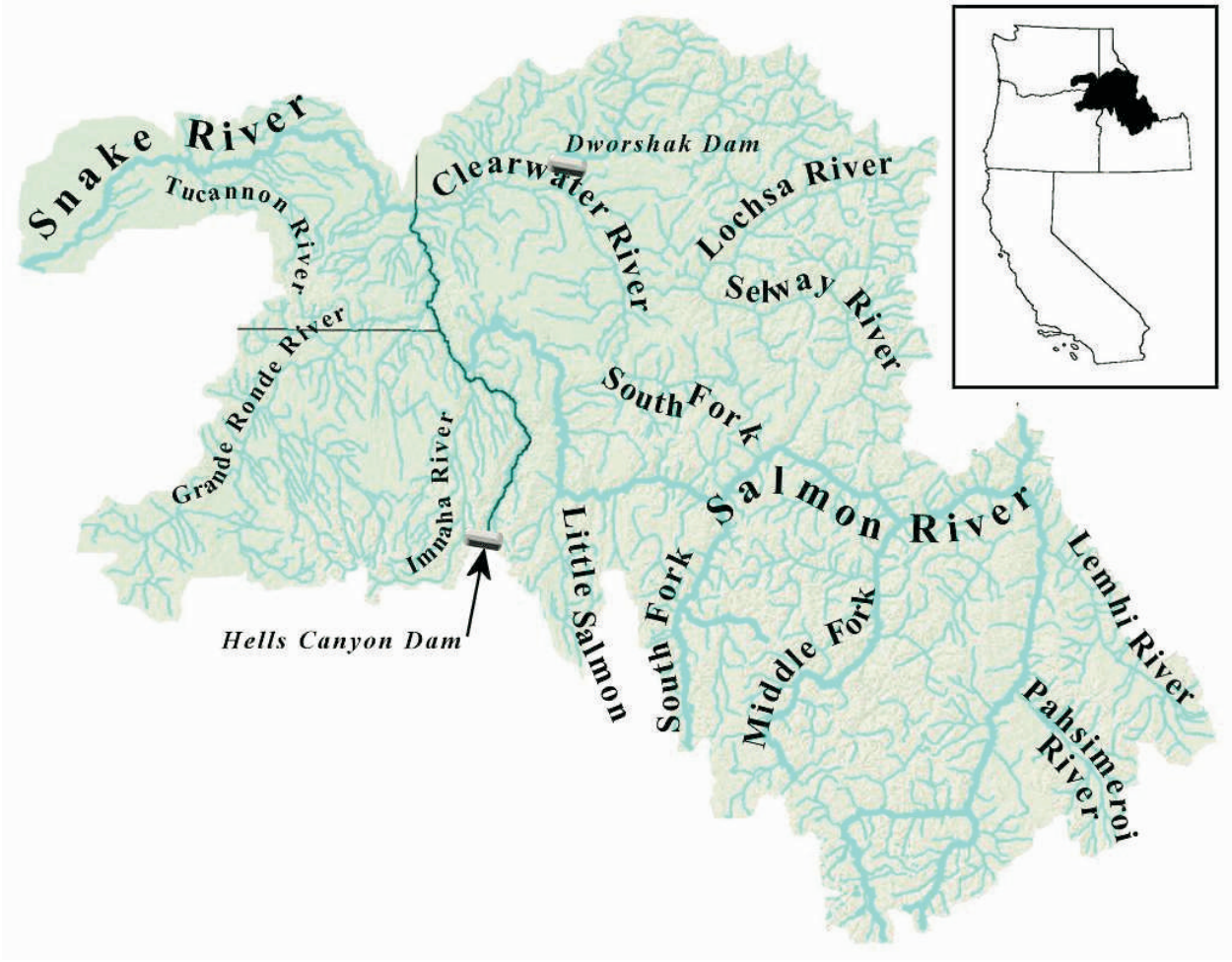

Figure 1. Map of the Snake River Basin, excluding areas upstream of Hells Canyon Dam.

endangered Snake River sockeye salmon and threatened Snake River fall chinook salmon may be present in some of the waters that are affected by the permitted activities.

1.3 Purpose Of and Need For the Action

The purpose of the Proposed Action is to allow the conduct of recreational fisheries consistent with the Policy for Conserving Species Listed or Proposed for Listing Under the Endangered Species Act While Providing and Enhancing Recreational Fisheries Opportunities (61 FR 27978) and with the State of Idaho Statutes that direct the Idaho Department of Fish and Game to provide sustainable fishing opportunities for the citizens of the state (§ 36-103 Idaho Code). Before a permit is issued, the potential impacts of the fishing activities will be evaluated and conditions adopted as necessary and advisable to provide for the conservation of listed species. The operation of the proposed recreational fisheries would be consistent with, and would take place within the greater context of regional and sub-basin salmon recovery plans. The IDFG fishery proposal includes a conservation plan and monitoring guidelines to assess the impacts of

recreational fishing and to ensure that the fisheries would not appreciably reduce the likelihood of the survival and recovery of ESA-listed salmon and steelhead.

The need for the Proposed Action is to manage and minimize risks to natural populations while allowing sustainable recreational fisheries consistent with state and Federal statutes and policies and to apply scientific fishery management protocols as part of the overall conservation of listed species. In addition to controlling the risk to listed salmon and steelhead, the recreational fishery management program is expected to ultimately contribute to local and regional economies and to the quality of human life in the region by providing recreational fishery opportunities.

1.4 Action Area

The action area for the proposed fishery activities is as follows:

- Spring Chinook Salmon – The Snake River, Clearwater River Basin, lower Salmon River, Little Salmon River, and South Fork Salmon River.
- Steelhead – The Snake River beginning at Lewiston, Idaho to Hells Canyon Dam, Clearwater River Basin, and Salmon River, including the Little Salmon River.
- General Fishing – Fishing for resident game fish species may take place in all of the rivers and streams accessible to anadromous fish including the entire Salmon River drainage, the Snake River drainage downstream from Hells Canyon Dam, and the Clearwater River Drainage except the North Fork upstream from Dworshak Dam.

The Snake River basin, including its tributaries, covers 695,000 square miles in six states. The Snake River is the largest tributary to the Columbia River and historically was the most important tributary producing anadromous fish in the entire Columbia basin (NMFS 1995). The Snake River is estimated to have produced between 39 and 45 percent of all Columbia River spring and summer chinook, 55 percent of summer steelhead and substantial numbers of fall chinook, sockeye, and coho salmon. The Salmon River, tributary to the Snake, is the largest undammed river in the continental United States. The South Fork Salmon River is reputed to be the single most important drainage for Snake River Basin summer chinook. The Clearwater River is known for steelhead of large size.

Approximately 8,000 miles of rivers and streams were once utilized by anadromous fish in the State of Idaho for spawning, rearing, and migration routes. Some large areas have become inaccessible due to impassable dams, however, IDFG estimates that 5,322 miles remain accessible including 2,981 miles in the Salmon River sub-basin, 2,158 miles in the Clearwater River sub-basin, and 183 miles in the Snake River drainage (IDFG 1985).

The Salmon River headwaters include the Sawtooth Mountains with numerous peaks over 10,000 feet above sea level. The Pahsimeroi River headwaters include the highest point in Idaho, 12,662-foot Mt. Borah, while the confluence of the Snake and Clearwater Rivers is the lowest

point in the state at barely 700 feet elevation. Annual precipitation ranges from less than 5 inches in the desert basins south of the Salmon River to 80 inches in the cedar forests at the head of the Clearwater system. The Salmon and Clearwater drainages include the Selway-Bitterroot Wilderness and the Frank Church/River of No Return Wilderness, which comprise the largest contiguous wilderness in the United States outside of Alaska. Smaller Wilderness Areas including the White Clouds and Buffalo Hump and the Sawtooth and Hells Canyon National Recreation areas are also contained within these drainages. Over 80 percent of the surface area is public land managed by the Clearwater, Nez Perce, Salmon/Challis, Payette, and Boise National Forests; and the Cottonwood, Salmon, and Challis Resource Management Areas managed by the U.S. Bureau of Land Management and the Idaho Department of Lands.

1.5 Scope

The scope of the action considered here includes only the recreational fisheries managed by IDFG that may affect listed anadromous fish species within the Snake River Basin, specifically the salmon, steelhead, and general season fisheries described above. The scope of the action is limited to incidental take of these species and populations in the proposed fisheries.

1.6 Relationship to Other Plans and Policies

The Proposed Action analyzed in this EA relates to other plans and policies regarding the management and restoration of anadromous fish resources in the Pacific Northwest. The discussion above, in subsection 1.1, describes the policy and decision foundation of the project. The concept of utilizing scientific fisheries management as a strategy to recover depleted salmon populations is described in the Basinwide Salmon Recovery Strategy, which was developed by the Federal government to restore ESA-listed salmon and steelhead throughout the Columbia River basin (Federal Caucus 2000).

Specific strategies of the Basinwide Salmon Recovery Strategy that guide this proposal are:

- Manage fisheries in a manner that prevents overharvest and does not thwart recovery efforts.
- Provide sustainable fisheries for the meaningful exercise of tribal fishing rights and non-tribal fishing opportunities consistent with the recovery effort.
- Use hatcheries to create fishing opportunities that are benign to listed populations, such as in terminal areas.

In addition, the Proposed Action is consistent with on-going ESA recovery planning. Recovery plans are being developed in most sub-basins in the Columbia River system. These recovery plans will contain: (1) measurable goals for delisting, (2) a comprehensive list of the actions necessary to achieve delisting goals, and (3) an estimate of the cost and time required to carry out those actions. All factors that have been identified as leading to the decline of ESA-listed species will be addressed in these recovery plans. For ESA-listed salmon and steelhead, these factors include hydroelectric operations, harvest, habitat use, and artificial propagation.

The primary state plan regarding anadromous fish is the IDFG "Fishery Management Plan 2000-2005" (IDFG 2000), which describes the State policy and plans regarding management and protection of salmon and steelhead. The permit application (IDFG 2004a) describes a conservation plan designed to promote recovery of listed anadromous fish in the Idaho portion of the Snake River basin that is specific to the proposed action.

Other Federal, state, and Tribal plans and policies that would potentially address effects on fish populations in the Snake River basin apply within or near the action area. Federal actions include Forest Service and Bureau of Land Management land and resource management plans which are designed to foster sustainable ecosystems and resilient watersheds. State initiatives include legislative measures to facilitate the recovery of listed species and their habitats, as well as the overall health of watersheds and ecosystems. State land management, environmental quality, water resources, and agriculture agencies all have policies and plans that address water quality and land use practices that are designed to achieve desirable water quality and resource conditions, some specific to protected species, some more generally addressing water and resource quality. Regional programs are being developed that designate priority watersheds and facilitate development of watershed management plans. Tribes have developed a joint restoration plan for anadromous fish in the Columbia River basin, known as the Wy-Kan-Ush-Mi Wa-Kish-Wit or Spirit of the Salmon plan. The Proposed action is expected to be compatible with the goals and objectives of other regional actions.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

The Proposed Action and two alternatives considered in this EA are: (1) No Action (i.e., no permit issued), (2) to issue the permit with conditions that specifically address measures to limit the take of listed species and manage the risks which may occur incidental to recreational fisheries (the Proposed Action), and (3) to issue the permit without conditions. The following summary describes major aspects of the Proposed Action and alternatives.

2.1 Alternative 1 (No Action) - Issue No Permit

Under the No Action alternative, NMFS would not issue an ESA section 10(a)(1)(B) permit authorizing take of ESA-listed species incidental to the otherwise lawful fisheries. This alternative would effectively prohibit recreational fishing within the portion of the Snake River drainage occupied by anadromous fish.

2.2 Alternative 2 (Proposed Action) - Issue a Permit to IDFG for Conduct of Recreational Fisheries

The Proposed Action is to issue a permit under section 10(a)(1)(B) of the ESA based on the application, including attachments, submitted by IDFG as modified by the conditions that NMFS may require as being necessary and appropriate. The application reflects the adoption of risk-

averse protocols that incorporate current science on management of recreational fisheries in a manner that minimizes risk to listed species. This alternative includes establishing an abundance-based sliding-scale to the allowable take of threatened Snake River spring/summer chinook salmon that may be intercepted in fisheries that target unlisted, hatchery origin salmon. NMFS' conditions would ensure that the incidental take of ESA-listed anadromous fish would not appreciably reduce the likelihood of the survival and recovery of the species in the wild.

Brief descriptions of IDFG's proposed fishery programs and the State's conservation plan are found in the following subsections (2.2.1 through 2.2.5). Additional details can be found in the permit application and conservation plan (IDFG 2004a).

2.2.1 Fishery Programs

General and steelhead fishing regulations are set by the Idaho Fish and Game Commission (IFGC) on a biennial basis. The development of regulations is based on the best scientific and commercial data available, including evaluating status of populations, annual surveys of angling activity and harvest, and public input. Regulation development by IDFG and adoption by the IFGC is conducted in a public process following the State's administrative procedure act, which requires public notice, comment periods, open meetings, and public hearings. During development of biennial fishing regulations the Federal agencies charged with ESA protection of listed fish species are engaged in consultation.

Salmon fishing opportunities are regulated on an annual basis, depending on counts and projections of returning adult salmon. Since 1978, no harvest of naturally produced anadromous salmon has been allowed, and the regulations state that seasons for anadromous salmon are closed unless opened by special rule. Specific regulations for anadromous salmon, including time frame, duration, quotas, gear restrictions, and locations are set annually when dam counts and population trend data predict the return of a harvestable component – that is, a return of hatchery-origin adult salmon in excess of hatchery broodstock needs and any identified conservation use of hatchery stocks (such as reintroductions or outplanting) that can be accessed by fishers without exceeding allowable impacts on listed species or stocks. Because the specific conditions of each anadromous salmon fishery may vary, it is not practical to set the conditions for every circumstance in the permit. In any year that IDFG proposes a fishery to harvest non-listed chinook salmon, specific season dates, open fishing areas, catch quotas, incidental take limits, and other details of the fishery would be reviewed by NMFS and approved if found to be in compliance with the permit modification. Compliance with ESA requirements and communication with NMFS are now integral facets of the State's conduct of salmon fisheries. There are no commercial fisheries in Idaho for game fish species including salmon and steelhead. The IFGC has the authority to modify fishing rules in-season, including emergency closures.

2.2.2 Anticipated Dates and Duration of the activity

Resident Fish Species Sport Fishing - General Fishing Regulations. Under permit 1481, the general statewide stream season in Idaho would run from Saturday of the Memorial Day weekend through November 30. Exceptions to the general stream season would include certain river sections that are open year-round and rivers or stream sections that are closed to all fishing for all or part of the general stream season. Most lakes, ponds, and reservoirs would be open to fishing the entire year, with exceptions to protect particular resources.

Anadromous Salmon Sport Fishing - Anadromous Salmon Fishing Regulations. Under permit 1481, fisheries for spring/summer chinook salmon, when returns allow, would typically occur from mid-April through the first full weekend in August (no later than August 7). Closing salmon fishing on or before August 7 is designed to protect listed fall chinook. Chinook fisheries would target returns of non-listed, hatchery-produced chinook that are returning to areas where the salmon are produced specifically to mitigate for fish and fishing opportunity that were lost when Federal and private hydroelectric generating dams were built. Fishermen would be allowed to only harvest marked fish, known to be of hatchery origin. Fishing regulations would be based on quotas of non-listed components and take limits of ESA-listed components of the run. Recreational chinook fisheries conducted by the state would be coordinated with treaty tribal fisheries, which may target the same species in the same water. The state fisheries would conform to harvest share agreements with the tribes, and the total impacts of all state and tribal fisheries would be considered in setting annual take quotas. Chinook fisheries would possibly be closed on short notice if in-season monitoring indicated that criteria for harvest share or incidental take limits were met.

Spring and Fall Steelhead Sport Fishing - Steelhead Fishing Regulations. Under permit 1481, the steelhead harvest season would last from September 1 through April 30, except steelhead would not be allowed to be harvested until October 15 on the Clearwater River, and the mainstem Salmon River would close on March 31. The Little Salmon River is the only Salmon River tributary typically open to harvest of steelhead. Like chinook, steelhead fisheries would target returns of non-listed, hatchery-produced fish that are returning to areas where they have been produced specifically to mitigate for fish and fishing opportunities that were lost when Federal and private hydroelectric generating dams were built. Fishermen would be allowed to only harvest marked fish, which are known to be of hatchery origin. Fishing regulations would be based on quotas of non-listed components and take limits of ESA-listed components of the run.

2.2.3 Specific Location of the Activity

The permit application and this EA refer only to recreational fishing activities in waters where ESA-listed anadromous species occur. The fisheries considered occur in river reaches accessible to anadromous fish in the Snake, Salmon, and Clearwater River drainages (below Hell's Canyon Dam on the Snake, and below Dworshak Dam on the North Fork Clearwater). The listed species include sockeye salmon, found only in the Salmon River drainage except when migrating through the Snake River; spring/summer chinook salmon in the Snake and Salmon River

drainages; fall chinook in the Snake and Clearwater drainages; and steelhead in the Snake, Salmon, and Clearwater River drainages. Recreational fishing occurs throughout these drainages under a variety of regulations depending on management objectives (IDFG 2000).

Resident Fish Species Sport Fishing - General Fishing Regulations. Some river sections where listed species occur are open to fishing for resident species year-round with local exceptions. Complete descriptions are provided in "General Fishing Seasons and Rules Including Steelhead" (IDFG 2004b). Waters open to year-round fishing (and exceptions) are as follows:

1) The mainstem Clearwater River upstream to the mouth of Clear Creek is open all year. The North Fork Clearwater is open from a posted boundary 150 yards above the mouth up to Dworshak Dam (the shoreline along Dworshak Hatchery is closed), also in the Clearwater drainage no fishing is allowed at any time within at least 200 yards of the Crooked River, Red River, and Powell (Lochsa River) fish weirs and in the immediate area of Selway Falls;

2) The Snake River from below Hells Canyon Dam to Lewiston is open all year;

3) The mainstem Salmon from its mouth upstream to Horse Creek (approximately 15 miles downstream from the Middle Fork Salmon River) is open all year. From the North Fork Salmon upstream to the headwaters of the Salmon River is open all year except within 200 yards of the Sawtooth Hatchery weir.

Anadromous Salmon Sport Fishing - Anadromous Salmon Fishing Regulations. Chinook salmon recreational fisheries are most likely to occur in the Clearwater River drainage, including sections of the mainstem, North Fork, and South Fork Clearwater Rivers and the Lochsa River, the Snake River, and the lower Salmon River, including the Little Salmon River. In previous years, recreational fisheries for spring/summer chinook were conducted on these waters and the South Fork Salmon River. Less than 500 miles of river, out of 4,000 miles occupied by chinook salmon, are likely to be open to fishing. In any year that IDFG proposes a fishery to harvest non-listed, hatchery-produced chinook salmon, specific season dates, open fishing areas, catch quotas, incidental take limits, and other details of the fishery would be reviewed by NMFS and approved if found to be in compliance with the permit.

Spring and Fall Steelhead Sport Fishing - Steelhead Fishing Regulations. Steelhead fishing regulations are designed to focus the fisheries in times and locations so as to target unlisted, hatchery-produced fish and to provide protection for wild fish (IDFG 1998). Only hatchery-produced fish, which are identified by a distinctive clipped fin, may be retained in possession by anglers in open fisheries. In all, only 683 of the 4,500 river miles occupied by steelhead are open to steelhead fishing, including 134 miles in the Snake, 407 miles in the Salmon River (including the Little Salmon River), and 142 miles in the Clearwater River and tributaries (Middle Fork and South Fork Clearwater Rivers). Listed, naturally-produced steelhead populations are protected by season closures, harvest restrictions, and limited access. No fishing for adult steelhead is allowed in either the Middle Fork or South Fork Salmon Rivers and their tributaries, which are major wild steelhead production areas. In the Clearwater drainage, the natural-origin stocks of the Lochsa and Selway Rivers are protected by regulations that allow fishing only on a no harvest basis and only from August 1 to December 31. The rules state "Any person may fish for

steelhead on a no-harvest basis August 1 through December 31 in any water open to fishing for other species EXCEPT in the Middle and South Forks of the Salmon River and their tributaries. All steelhead caught during the no-harvest period shall be released unharmed immediately. A valid license and steelhead permit are required to fish for steelhead" (IDFG 2004b).

2.2.4 Conservation Plan

Summary of Impacts

The primary method for enumerating runs and determining the composition of anadromous fish that may be affected by recreational fisheries in the Snake River basin is the counting and biological sampling of fish as they migrate up the Columbia and Snake Rivers. The fish are physically counted and sampled as they pass the eight dams in the Federal Columbia River Power System. Anadromous salmon and steelhead fisheries are evaluated by catch-card and telephone surveys, check stations, and roving creel census samples. Resident species fisheries are evaluated by angler diary reports, roving creel census, and enforcement checks. Attempts are consistently made to update data and methodology to best represent the analysis considered. The best available scientific and commercial data and methodology are used in analyzing the resulting data.

Estimated Fishery Harvest/Mortality

A key factor in estimating potential effects of the proposed fisheries on salmon and steelhead is the degree of incidental mortality resulting from fish that are hooked and released. The available information assessing hook and release mortality of adult steelhead suggests that hook and release mortality is low. Hooton (1987) found catch and release mortality of adult winter steelhead to average 3.4% (127 mortalities of 3,715 steelhead caught) when using barbed and barbless hooks, bait, and artificial lures. Hooton (1987) concluded that catch and release of adult steelhead was an effective mechanism for maintaining angling opportunity without negatively impacting stock recruitment. Reingold (1975) showed that adult steelhead hooked, played to exhaustion, and then released returned to their target spawning stream as well as steelhead not hooked, and played to exhaustion. Pettit (1977) found that egg viability of hatchery steelhead was not negatively affected by catch-and-release of pre-spawning adult female steelhead. For the purposes of this evaluation, NMFS assumes that adult steelhead caught and released in the proposed fisheries would suffer a 5% incidental mortality rate.

The IDFG implements various restrictive fishing regulations to avoid impacts on juvenile steelhead. These regulations include: Catch and Release in key wild steelhead areas, which requires the use of artificial flies and lures with single barbless hooks; Wild Trout regulations in remote areas such as wilderness areas with low angler effort and a four to six week use period limited by weather conditions, and a two fish limit with no size restrictions; Restrictive Special regulations that include reduced bag limits with restrictions on size of fish and gear type; and, Quality Trout regulations which include a limit of two trout 14 inches or longer or those fish with a missing adipose fin (hatchery rainbow trout), and the use of a barbless hook and no bait.

The overall mortality rate for catch and release fisheries depends on the encounter rate of wild fish (percentage of the run that is actually caught and released) in the fisheries and the mortality rate associated with being caught and released (hook-and-release mortality) and the illegal harvest of wild fish. Research conducted by IDFG on the East Fork South Fork Salmon River and lower Johnson Creek in 1994 indicated that sport anglers effected an exploitation rate of 11% on the juvenile rainbow/steelhead (Janssen et al. 1994). This exploitation rate is representative of expected rates in a stream that is accessible by an improved forest road and subject (during the study) to general fishing regulations. Streams that are less accessible, such as in the wilderness areas, or subject to catch-and-release or wild trout regulations would have lower exploitation and hooking mortality rates. Hooking mortality of trout is generally less than 10% and may be as great as 16% when bait is used (Schill et al.1986; Schill 1996; Schisler and Bergersen 1996). If 11% of the juvenile steelhead population was subjected to a 16% mortality rate, the population impact would be less than 2%. In an inaccessible wilderness stream, subject to catch-and-release, barbless-hook, artificial lures-only regulation, exploitation rates would likely be in the range of 5% or less and per-capture mortality would also be in the lower ranges of the reported rates at 5% or less. Population impacts would be calculated at 5% of 5%, or 0.25%. Due to the low exploitation rate and low hooking mortality rates combined with restrictive regulations, the current fishing regulations have substantially reduced fishery mortality to listed fish from those in the past.

Similar calculations are used to estimate the incidental mortality of adult chinook salmon hooked and released. Mortality rates for hooked and released chinook are reported as 7.6 % by Bendock and Alexandersdottir (1993) for adult fish in the Kenai River, Alaska, and 8.6% for spring chinook in the Willamette River, Oregon, by Schroeder (1999). NMFS has chosen to use 10% per-capture mortality as a conservative representation of the risk of hooking mortality in recreational fisheries. If a fishery projects a 25% harvest rate on hatchery-origin fish, a similar proportion of the natural origin fish would be caught and released. If 25% of the population was subjected to 10% mortality, then the population impact wold be calculated at 2.5%. IDFG designs fishing regulations to reduce the impact of handling non-targeted fish. For example, fisheries are only open in areas downstream from hatcheries where fish returning to hatchery programs are concentrated during the times that natural fish are less likely to be present.

• Snake River Naturally Produced Spring/Summer Chinook Salmon: Harvest rates on Snake River naturally produced spring/summer chinook salmon would be monitored closely during the limited open seasons. In recent years of open salmon fishing, there were no reports of capture or mortality of listed chinook salmon in the Clearwater River fishery. The chinook salmon fisheries in the Lower Salmon River, Little Salmon River, and the South Fork Salmon River are monitored closely and have, in recent years, been closed due to calendar dates or achieving harvest quotas without reaching the incidental take limits set by NMFS. The allowable incidental take mortality of listed spring/summer chinook salmon would be limited by an abundance-based sliding scale that prohibits take at low run sizes and gradually allows increasing incidental take when the listed anadromous salmon that return to the Snake River basin populations approach recovery targets.

As part of permit 1481, NMFS proposes to authorize annual incidental take impacts on listed spring/summer chinook salmon within a sliding scale as follows:

(1) no incidental take would be allowed when fewer than 4,000 natural spring/summer chinook salmon cross Lower Granite Dam,
(2) the total incidental take of listed Snake River spring/summer chinook salmon in recreational fisheries shall be no more than 0.25 percent of the total run when between 4,001 and 6,400 natural fish pass Lower Granite Dam,
(3) the incidental take shall not exceed 0.5 percent when the number of natural fish is between 6,401 and 14,250,
(4) the incidental take shall not exceed 0.75 percent when the number of natural fish is between 14,251 and 21,400,
(5) the incidental take shall not exceed 1.0 percent when the total run is between 21,401 and 28,500,
(6) the incidental take shall not exceed 1.5 percent between 28,501 and 35,600, and
(7) the incidental take shall not exceed 2.0 percent when the total run of listed, naturally produced, spring/summer chinook salmon is in excess of 35,601 (Table 1).

Table 1. Proposed sliding scale for IDFG recreational fishing impacts on listed Snake River spring/summer chinook in the Snake River Basin (excluding the South Fork Salmon River terminal fishery).

Lower Granite Dam Predicted Return of Natural Listed Spring/ Summer Chinook	Maximum Percent of Wild Run Mortality for IDFG Recreational Fishery (%)	Range of Potential Incidental Mortalities	Estimated Number of Adult Salmon caught-and-released
4,000 or fewer	0 [1]	0	--
4,001 to 6,400	0.25	10 – 16	100 – 160
6,401 to 14,250	0.5	32 – 71	320 – 710
14,251 to 21,400	0.75	107 – 161	1,070 – 1,610
21,401 to 28,500	1.0	214 – 285	2,140 – 2,850
28,501 to 35,600	1.5	428 – 534	4,280 – 5,340
35,601or more	2.0	> 712	> 7,120

[1] As noted in the text, a fishery is allowed on the Little Salmon River if more fish than are needed for broodstock are expected to return to Rapid River Hatchery

• Snake River Fall Chinook Salmon: Mortality of Snake River fall chinook salmon may occur incidental to the proposed fishery directed at non-listed hatchery-produced steelhead, or in fisheries for resident game fish. The IDFG estimates that a maximum of 1.5 percent of the adult, naturally-produced, listed Snake River fall chinook salmon counted over Lower Granite Dam may be caught and released in steelhead and resident species fisheries (IDFG 2004a). If the catch

rate is 1.5 percent (0.015), and the mortality rate of those fish that are handled and released is 10 percent (0.10), then the population impact would be estimated at no greater than 0.15 percent (0.0015). Recent returns of Snake River fall chinook have included about 5,000 natural fish, of which, therefore, 1.5 percent or 75 fish might be caught and 10 percent, or 8 adults, might be fatally injured. The annual mortality of fall chinook salmon is estimated at up to 10 adult fish in the steelhead fishery and 1 adult salmon in the resident species fishery.

• Snake River Sockeye Salmon: No capture or mortality of adult sockeye salmon in Idaho recreational fisheries has been reported in the past 25 fishing seasons. Harvest of juvenile anadromous sockeye salmon is unlikely because they are too small to be caught on conventional fishing gear. Harvest of residual sockeye salmon in lakes is strictly controlled and is expected to be fewer than 34 fish annually as previously authorized in permit 1150.

• Snake River Basin Steelhead: The mortality of listed steelhead would be primarily from post-release mortality from fish that have been hooked and released by anglers. This mortality is estimated to be no more than 3.2 percent of the population counted at the uppermost Snake River dam. In recent years, the listed fish escapement past Lower Granite Dam has been 8,000 to 10,000 fish, and estimates of mortality due to fishing are 250 to 320 annually.

Type of Take

The take involved in these activities would be post-release mortality from catch and release fisheries by recreational fishers, and accidental or intentional illegal harvest. The take would occur as a result of incidental encounter of listed species in recreational fisheries that target unlisted, hatchery-origin salmon and steelhead. Direct take fisheries for listed salmon and steelhead in the Snake River Basin would not be addressed by this permit, but may be addressed in enhancement permits issued under section 10(a)(1)(A) of the ESA, or in Resource Management Plans under section 4(d).

Effect of Take

Take of ESA-listed species includes small numbers of ESA-listed spring/summer and fall chinook salmon and ESA-listed wild steelhead that would be caught and released in fisheries targeting marked hatchery stocks. Descaling, internal injuries, and stress-related trauma could occur in fish that are released. Delayed mortality estimates are included in total mortality numbers.

Measures to Minimize, Mitigate, and Monitor Impacts of Fisheries

The permit application includes measures described below that are intended to minimize and mitigate impacts of the proposed activities to the maximum extent practicable. Historical records of migration and distribution have been used in designing fisheries.

• Fishery Management: The fisheries proposed are thoroughly described in the IDFG application for a section 10 (a)(1)(B) permit (IDFG 2004a), the 2004-2005 General Fishing Regulations pamphlet (IDFG 2004b), the 2001 modification request for permit 1233 (IDFG 2001), and the

steelhead Recreational Fishing Management and Evaluation Plan (IDFG 1998). The fisheries would be restrictive and would reflect the use of a conservative, science-based approach to recreational fishery management designed to minimize impacts on listed species.

• Accounting and Evaluation: IDFG participates in regional committees that develop and analyze estimates of harvestable numbers of anadromous fish. Tag returns and other biological samples are shared with the states of Oregon and Washington and tribal co-managers. Consultation on ESA issues with the Federal agencies is ongoing and includes annual and in-season reports of angling activities and harvest rates that are required by section 10 permits.

• In-season Management: Each year, estimates of fish runs are tracked as the fish are enumerated at dams and hatchery traps. During the fishing season, estimates of fishing activity and harvest would continue to be shared with the Federal agencies and co-managers, and adjustments to seasons or harvest regulations would continue to be made when necessary.

• Funding: Funding for IDFG fishery monitoring and impact assessment in the Columbia River comes from Idaho sport fishing license dollars, the Wallop-Breaux sportfish restoration program, and the Northwest Power and Conservation Council fish and wildlife program.

2.2.5 Conditions

The Proposed Action is to issue an ESA section 10(a)(1)(B) permit with conditions. Conditions relevant to Idaho recreational fisheries that have been applied since permit 844 was issued in 1993, with modifications included in permit 1233, would be applied in the proposed permit. Some new conditions specific to the changes for fisheries in the Snake River and tributaries 2004 - 2009 have been added and are analyzed in the NMFS biological opinion for the 2004 - 2009 Idaho recreational fisheries and issuance of permit.

In general, conditions pertinent to the fisheries would require IDFG to:

1. Manage their fisheries to keep harvest rates within the limits described in the biological opinion, based on preseason projections of run size and any subsequent in-season updates.

2. Limit incidental take of listed spring/summer chinook salmon within a sliding scale that would prohibit take at very low run sizes and allow gradual increases in take as run sizes approach recovery targets.

3. Provide annual reports of fishing activities and effects and submit annual reauthorization requests to NMFS analyzing run predictions, status of listed stocks and estimated fishery impacts.

4. Sufficiently monitor the catch in all Snake River basin fisheries to provide statistically-valid estimates of the salmonid catch. The recreational fishery shall be sampled using effort surveys and suitable measures of catch rate.

5. Monitor catch-and-release fisheries including records of the condition of salmonids released, where possible, to help assess overall mortalities for these fisheries.

6. Provide for law enforcement and public information programs needed to ensure compliance with protective regulations.

2.3 Alternative 3 - Issue a Permit Without Conditions

Under Alternative 3, the permit issued pursuant to section 10(a)(1)(B) would authorize the IDFG to operate recreational fisheries that might incidentally take listed anadromous fish species under state law with no additional restrictions or conditions. The difference between the Proposed Action and Alternative 3 is that, under the Proposed Action, NMFS would require IDFG to monitor and evaluate the effects of recreational fishing on listed species, apply protective measures to minimize affects on listed species, and to report and document the effectiveness of the protective measures. Establishing conditions in permits ensures that measures will be implemented by the Permit Holder to minimize adverse impacts on ESA-listed fish and that agency actions will not appreciably reduce the survival and recovery of ESA-listed species. In addition, NMFS' conditions may serve to further limit WDFW's proposed activities in such a way as to enhance the proposed conservation efforts.

Under Alternative 3, the state would only be constrained by state statutes that empower the agency to provide fishing opportunity and sustainable levels of resources for harvest. Because an incidental take permit would be issued, this alternative would result in IDFG's implementation of the fisheries to be in legal compliance with the ESA, but the real effect of the fisheries on the likelihood of survival and recovery of the listed species would only be as certain as the appropriateness of the fishery management actions applied in any given season, and the ability to evaluate the fisheries' effects would only be as good as the monitoring and evaluation that would take place. NMFS considers it most likely that the IDFG would continue to implement its fisheries in a conservative manner, and would monitor its fishery effects as funding allows, but not imposing conditions in permits could potentially result in unexpected environmental impacts if impact minimization strategies are substantially altered by the Permit Holder.

2.4 Potential Alternatives Considered, But Not Analyzed in Detail

NMFS did not identify any other alternatives that would meet the purpose and need for this Proposed Action.

3.0 AFFECTED ENVIRONMENT

The Proposed Action would potentially affect the physical, biological, social, and economic resources within the proposed action area. Below is a summary of the major components of the environment that could be affected and the current baseline condition.

3.1 Riparian Habitat

The proposed fishing activities would potentially take place on any of the approximately 5,000 miles of stream within the range of anadromous fish in the Snake River basin. Riparian habitat conditions vary from pristine alpine meadows deep inside designated Wilderness to rip-rapped embankments along major highways and in urban areas. Studies from the Interior Columbia Basin Ecosystem Project state that many areas in the Interior Columbia basin are showing a reduction in the large tree component and a decline in shrublands in the riparian zones in most of the ecological reporting units (Quigley and Arbelbide 1997). There has been extensive modification of riparian areas in the past by various land uses, including grazing, logging, mining, agriculture, urbanization, and roads that parallel and cross some stream segments. Possible impacts on riparian vegetation and habitat by angling could occur primarily through bank fishing, movement of boats and gear to the water, and other streamside use. The geology is primarily granite of the Idaho batholith and basalt of the Columbia River formations.

3.2 Water Quality

Water quality in the Snake River basin has been impacted by a variety of past and present land and water uses, and may be a factor limiting fish production in some areas (NMFS 1995). Idaho Department of Environmental Quality has listed over 160 stream segments on the 1998 303(d) summary of streams with impaired water quality (IDEQ 1998). Water quality may be impaired by sedimentation from past road building, mining, grazing, and recreational activities, as well as municipal and industrial discharge. An alternate effect on water quality is related to the presence of salmonid carcasses in the water, as a result of dying after spawning, or dying during unsuccessful upstream migration. Freshwater stream environments in the Pacific Northwest are generally cold and lacking in dissolved nutrients. Anadromous salmon are a major vector for transporting marine nutrients across ecosystem boundaries (i.e., from marine to freshwater and terrestrial ecosystems). Nutrients and biomass extracted from the decomposing carcasses, eggs, and milt of spawning salmon restore the nutrients of aquatic ecosystems and stimulate biological production (Cederholm et al. 1999). Nutrients originating from salmon carcasses are also important to riparian plant growth. Direct consumption of salmon carcasses and secondary consumption of plants and small animals which are supported by carcasses are important sources of nutrition for both aquatic and terrestrial wildlife (Cederholm et al. 1999).

3.3 Anadromous Fish Listed under the ESA

Anadromous salmon reach the headwaters of the Salmon River at elevations more than 6,500 feet above sea level and a distance of over 900 miles from the ocean. Although dams have blocked access to about one-third of the habitat formerly occupied by anadromous fish in the Snake River basin, in excess of 5,000 stream miles, representing approximately two-thirds of the historically available spawning and rearing habitat within the Idaho portion of the Snake River basin remains available to anadromous fish (IDFG 1985). Many of the historically most important spawning and rearing areas are located within the largest block of dedicated Wilderness in the 48 contiguous states, in Wild and Scenic River corridors and National Recreation Areas, and remain in excellent condition.

3.3.1 Species Considered

Since 1991, NMFS has identified 12 Evolutionarily Significant Units (ESU) of Columbia River Basin salmon and steelhead as requiring protection under the ESA. Four of the listed ESUs originate in the Snake River basin. The populations expected to be impacted by the recreational fisheries covered in this EA and their current listing status are shown below. The ESA-listed populations include some portion of artificially propagated fish as well as the wild/natural populations.

a) Snake River spring/summer chinook salmon, *Oncorhynchus tshawytscha*, listed as threatened on April 22, 1992 (57 FR 14653). This ESU includes tributaries to the Snake River upstream of the Snake and Columbia River's confluence. It includes all natural populations and certain hatchery produced components of spring and summer chinook salmon populations in the mainstem Snake River and the following sub-basins: Tucannon River, Grand Ronde River, Imnaha River, and Salmon River. Spring/summer chinook salmon returning to hatchery programs and supplementation programs in the Clearwater River are excluded because the native stocks were extirpated by dams and the current populations were reintroduced after the dams were breached (Matthews and Waples 1991).

b) Snake River fall chinook salmon, *Oncorhynchus tshawytscha*, listed as threatened on April 22, 1992 (57 FR 14653). This chinook salmon ESU includes all natural populations of fall-run chinook salmon in the mainstem Snake River and the following sub-basins: Tucannon River, Grande Ronde River, Imnaha River, Salmon River, and Clearwater River. Although not listed, the Snake River fall chinook stock maintained at Lyons Ferry hatchery is deemed to be included in the ESU and is utilized for rebuilding natural spawning populations (NMFS 1998).

c) Snake River sockeye salmon, *Oncorhynchus nerka,* listed as endangered on November 20, 1991 (56 FR 58619). This population remains only in Redfish Lake, at the headwaters of the Salmon River, and in a captive broodstock program designed to restore

natural spawning populations in Redfish Lake and nearby Petit and Alturas Lakes (Flagg and McCauley 1996).

d) Snake River Basin steelhead, *Oncorhynchus mykiss,* listed as threatened on August 18, 1997 (62 FR 43937). This inland steelhead ESU occupies the Snake River basin of southeast Washington, northeast Oregon, and Idaho (Busby et al. 1996). Hatchery-origin steelhead in the Tucannon River, Imnaha River, and East Fork Salmon River have recently been derived from listed, natural populations and are listed.

3.3.2 Species Descriptions

3.3.2.1 Snake River Spring/Summer Chinook Salmon

Spring chinook salmon destined for the Snake River and tributaries begin entering the Columbia River in late February and early March. Their abundance downstream from Bonneville Dam peaks in April and early May. All chinook salmon passing Bonneville Dam from March through May are counted as spring chinook salmon. All chinook salmon passing Bonneville Dam from June 1 through July 31 are counted as summer chinook salmon. These fish enter the Snake River approximately two weeks after crossing Bonneville Dam and distribute to the tributaries where they spawn in August and September. Although certain populations are clearly in the spring or summer time period when crossing Bonneville Dam, the separation by time and geography is less clear in the Snake River, and spring-run and summer-run chinook are considered to be components of the same ESU (NMFS 1998).

3.3.2.2 Snake River Fall Chinook Salmon

Fall chinook salmon cross Bonneville Dam after August 1 each year and arrive in Idaho in September and October. In the Snake River, habitat utilized by fall chinook salmon for spawning and early juvenile rearing is different from that utilized by spring-run and summer-run fish. The latter two forms spawn and rear in high elevation sections of the Salmon River and other tributary streams, whereas fall chinook salmon use mainstem areas of the Snake River and the low elevation parts of major tributaries. Spring/summer chinook salmon are described as having the "stream type" life history, which includes entering fresh water in an early stage of reproductive maturity and typically includes a yearling age smolt. Fall chinook typically enter freshwater in an advanced stage of maturity and produce subyearling smolts (NMFS 1998).

Snake River fall-run chinook salmon were determined to comprise a separate ESU from Snake River spring or summer chinook salmon based on differences in the timing of adult returns to spawning areas, different spawning areas, different life history, and genetic differences. Historically, the most important spawning grounds for fall chinook salmon in the Snake River were between Huntington, Oregon (river mile 328) and Auger Falls (river mile 607). The distribution of Snake River fall chinook salmon has been dramatically reduced and now represents only a fraction of its former range. The construction of dams inundated spawning habitat and prevented access to the species' primary production areas when fish passage facilities at the dams proved to be inadequate. The Snake River fall-run chinook salmon ESU is now

restricted to approximately 100 miles of the Snake River between Lewiston and Hells Canyon Dam and the lower reaches of major tributaries in this reach (NMFS 1998).

3.3.2.3 Snake River Sockeye Salmon

Sockeye salmon migrate through the lower Columbia River during June and July, with normal peak passage at Bonneville Dam around July 1. Sockeye salmon runs include fish from a remnant Snake River stock listed as endangered since December 1991. Only a very few of these fish (fewer than 20 wild fish in the past 10 years) arrive at spawning areas near the headwaters of the Salmon River in August and September (BRT 2003).

3.3.2.4 Snake River Basin Steelhead

Summer steelhead enter the Columbia River from March through October, with most of the run entering from late June through mid-September. The upriver steelhead run has historically been separated into A and B groups, which pass Bonneville Dam before and after August 25. Group A steelhead include fish that pass Bonneville Dam from late June through August 25 on their way to tributaries throughout the Columbia and Snake River Basins. Group B steelhead return to the Clearwater and Salmon Rivers in Idaho and pass Bonneville Dam from August 26 through October. Individual Group B steelhead are generally larger in size than group A steelhead (Busby et al. 1996).

Group A and B steelhead cannot be distinguished based on run timing above Bonneville Dam, where groups mix as fish seek temporary refuge in tributaries where temperatures are cooler than in the mainstem. Steelhead counts at dams above Bonneville surge as mainstem water temperature declines in the fall. Counts peak at John Day, McNary, and the Snake River Dams in September and October. During years of above-average September-October flows and low temperatures, steelhead move readily past lower Snake River dams during the fall counting period (June-December) and few fish are delayed until the spring count period (March-May). Snake River steelhead experience high Bonneville to Lower Granite Dam survival rates in run years with low spring count percentages.

3.4 Other ESA-Listed Fish Species

One other ESA-listed fish species is expected to be present in the area affected by the Proposed Action. The Columbia River population segment of bull trout (*Salvelinus confluentus*) was listed as threatened by the USFWS in 1998 (June 10, 1998, 63 FR 31647). Bull trout populations are known to exhibit four distinct life history forms: resident, fluvial, adfluvial, and anadromous. Resident bull trout spend their entire life cycle in the same (or nearby) streams in which they were hatched. Fluvial and adfluvial populations spawn in tributary streams where the young rear from 1 to 4 years before migrating to either a lake (adfluvial) system or a river (fluvial) system, where they grow to maturity. Anadromous fish spawn in tributary streams, with major growth and maturation occurring in salt water. More information on bull trout can be found in Rieman and McIntyre (1993) and in the listing notice.

Migratory bull trout have been restricted or eliminated due to stream habitat alterations, including seasonal or permanent obstructions, detrimental changes in water quality, increased temperatures, and the alteration of natural stream flow patterns. The disruption of migratory corridors, if severe enough, would result in the loss of migratory life history types and isolate resident forms from interacting within the metapopulation. The Columbia River population segment encompasses a vast geographic area including portions of Idaho, Montana, Oregon, Washington, and British Columbia.

Within the Snake River basin, in waters occupied by anadromous salmon and steelhead, bull trout exhibit only the fluvial and resident life histories. Also within the Snake River basin, there is likely some degree of connectivity among the populations in the Snake River and its major tributaries (Batt 1996). The range of bull trout in the Snake River Basin approximates the distribution of anadromous fish (Batt 1996). Bull trout are present, and locally common, in all of the rivers and streams occupied by anadromous fish in the Snake River basin. According to the USFWS listing notice for bull trout (63 FR 31647) there are 34 bull trout populations occupying 14 major tributaries of the Snake River. Although habitat fragmentation is a concern for bull trout populations in portions of the range, the listing notice concludes:

> *"The [Snake River] basin downstream from Hells Canyon Dam is relatively intact and connectivity among bull trout sub-populations may still occur. Bull trout occupy large areas of contiguous habitat in the Snake River basin downstream from Hells Canyon Dam, such as the Clearwater and Salmon River basins. High numbers of bull trout have been observed in the Tucannon River, Imnaha River, Clearwater River, Salmon River and Malhuer River subpopulations, however, trends in abundance are largely unknown or declining."* (63 FR 31647)

Much of the bull trout habitat in the Snake River basin occurs in Federally designated Wilderness or other specially designated Federal lands. For example, the upper reaches of the Lochsa River and nearly the entire Selway River are located within the Selway-Bitterroot Wilderness. The upper Salmon River is located in the Sawtooth National Recreation Area and the Sawtooth and Frank Church Wilderness areas. The Middle Fork Salmon River and many main Salmon river Tributaries are located within the Frank Church/River-of-No-Return Wilderness. The Imnaha River starts in the Eagle Caps Wilderness and flows most of its length through the Hells Canyon National Recreation area, which also includes the main Snake River and some Salmon River tributaries. Because anadromous salmonids and bull trout are Federally listed species and are considered to be outstanding resource values on the National Forests, special care is taken by the land management agencies towards habitat protection.

Bull trout are likely to be taken in the same recreational fisheries that may take juvenile steelhead. Each of the States in the Snake River basin have adopted special protective angling regulations that minimize the impact of recreational angling on bull trout. Bull trout may not be legally harvested in Idaho. In listing bull trout, the USFWS found that the state angling regulations were adequate to protect the species from excessive taking (63 FR 31647). In the

section 4(d) rule adopted at the time of bull trout listing, the FWS allowed take of bull trout in accordance with applicable state laws.

3.5 Non-listed Fish Species

Approximately 60 other species of fish live in the Snake River and tributaries. About half are native species primarily of the families *Salmonidae, Catastomidae, Cyprinidae*, and *Cottidae.* White sturgeon*, Acipenser transmontanus,* occur in the main Snake and Salmon Rivers. The Snake River basin also supports at least 25 introduced species primarily representing *Percidae, Centrarchidae*, and *Ictaluridae* (Simpson and Wallace 1978). The most common resident species likely to occur in waters occupied by anadromous fish are native populations of mountain whitefish (*Prosopium williamsoni*), west slope cutthroat trout (*Oncorhynchus clarki*), rainbow trout (resident *O. mykiss*), dace (*Rhinichthys* spp.), and sculpin (*Cottus* spp.)

Introduced brook trout (*Salvelinus fontinalis*) are abundant in some tributaries where they are considered to be a risk to native fish species. Brook trout (*Salvelinus fontinalis*) are often regarded as a risk to native trout and salmon populations in western streams because of competition and predation (Griffith 1988). The species is prolific and predaceous and may completely replace native trout species in streams (Behnke 1992). Brook trout are also known to hybridize with bull trout to the detriment of the listed species (Simpson and Wallace 1978). Brook trout were widely introduced in the western United States by state and Federal resource managers for many years because they are capable of supporting popular recreational fisheries and are adaptable to a wide range of stream and lake habitats (Dill and Cordone 1997). However, in recent years, IDFG has adopted management strategies to reduce brook trout populations through generous bag limits (25 per day) and long open seasons in an attempt to reduce impacts on native salmonids (IDFG 2000, 2004a).

Northern pikeminnow (formerly northern squawfish) (*Ptychocheilus oregonensis*) have been identified as the predominant fish predator affecting survival of juvenile salmonids migrating downstream in the Snake and Columbia Rivers (BPA 1991). As a result, several attempts to reduce the numbers of northern pikeminow in the migration corridor have been undertaken, including a system of paying bounties to recreational anglers for the carcasses of pikeminnow over 11 inches in length caught in the migration corridor (BPA 1991). This program has successfully reduced the number of larger, predaceous pikeminnow in certain areas and is believed to have improved the survival of juvenile salmonids (Beamesderfer et al. 1996). Northern pikeminnow continue to be abundant throughout the recorded range of the species (Beamesderfer et al. 1996).

3.6 Terrestrial Organisms

The Snake River basin includes terrain that ranges in elevation from 700 feet above mean sea level at the confluence of the Snake and Clearwater Rivers to over 12,600 feet above mean sea level in the headwaters of the Salmon River. Ecosystem maps, wildlife distribution maps and

species lists are contained in "Atlas of Idaho's Wildlife" (Groves et al. 1997) – descriptive information is briefly summarized here. Within the varied terrain, all 25 of the identified vegetative ecosystems that have been identified in Idaho occur. These ecosystems range from alpine to urban and salt desert to temperate red cedar and hemlock rain forest and support a variety of terrestrial wildlife and plants. The State of Idaho supports 364 known species of vertebrates as reproducing populations, nearly all of which are expected to occur within the Snake River basin. Three mammal species and one bird species that may occur in the Snake River basin are listed under the ESA. Gray wolf (*Canis lupus*) occur as an introduced population with an Experimental/Non-essential designation. Canada lynx (*Lynx canadensis*), Northern Idaho ground squirrel (*Spermophilus brunneus brunneus*), and bald eagle *(Haliaeetus leucocephalus*) are listed as threatened (USFWS 2004).

3.7 Social and Economic Resources

Salmon are culturally, economically, and symbolically important to the Pacific Northwest. Columbia River chinook salmon populations were at one time acknowledged to be the largest in the world. Prior to the 1960s, the Snake River basin was the most important drainage in the Columbia system for producing salmon (NMFS 1995). Native Americans lived, fished, and hunted throughout this area for thousands of years. Salmon were an important aspect of the cultural life and subsistence of the Indian tribes that occupied the Salmon River mountains. Early gold strikes and mining activity in the Salmon and Clearwater sub-basins brought the first non-Indian settlers to the area in the 1800s. Salmon provided subsistence fishing for the early miners and ranchers and later supported popular recreational fishing and contributed to an active outfitting and guiding industry in the Snake River country. The cultural importance and former abundance of salmon is memorialized in the names of geographic features and landmarks like the Salmon River, Salmon City, Salmon Falls, and Redfish Lake.

The depleted status of salmon populations in the 1970s, 1980s, and 1990s ended many of the cultural practices and subsistence uses of salmon made by the indigenous Indian tribes and curtailed the economic and cultural benefits of the non-Indian recreational fisheries that the salmon resource formerly supported. Recent increases in fishing activities supported by hatchery-produced salmon and steelhead provide an indication of the value of recreational fishing (Reading 1998). Approximately 450,000 anglers expend 4.5 million days of angling effort in Idaho each year (IDFG 1993). In 1996, 483,459 anglers spent over 4,411,000 angler days fishing in Idaho waters (Maharaj and Carpenter 1997). Angler expenditures of about $280,000,000 generated an economic output of over $461,682,000 and $116,552,000 in worker earnings. These wages and salaries translate into 6,884 full-time equivalent jobs (Maharaj and Carpenter 1997). Recreational fisheries for salmon and steelhead similar to those considered under the Proposed Action would be estimated to add some $180 million to the economy of the state annually and support as many as 5,400 jobs (Reading 1998).

Steelhead fishing is an important part of Idaho's culture and economy. In the 11 years from 1986 to 1996, an average of more than 32,000 season steelhead tags (and required fishing licenses)

were sold in Idaho. In addition, an average of 3,200 3-day permits were sold annually from 1988 to 1996 and steelhead tags were sold as part of the Sportsman package starting in 1988 (from 2,188 in 1989 up to 13,375 in 1995). Steelhead anglers harvested about 30,000 steelhead in approximately 186,000 angler days, annually, from 1969-1996. In the 2001-2002 season, the total was 310,000 days to harvest 100,000 fish (Scott Marshall, IDFG, pers. comm.). Reading (1996) reported that recreational steelhead fishing in Idaho during the 1992-1993 season was responsible for over $90 million in expenditures and 2,700 jobs. Furthermore, Reading (1996) projected that restored salmon fishing would produce about $60 million in economic activity and directly create 1,000 jobs (and another 800 jobs through secondary effects) (IDFG 1998). In an analysis of data from the 1997 chinook season, Reading (1998) estimated chinook salmon anglers would spend an estimated $72 million a year in Idaho and support nearly 700 jobs in Idaho's rural communities.

In 1997, 5,985 season salmon tags, and 243 3-day salmon tags were sold. In addition, 13,904 Sportsman Packages, which contain the salmon tag, were sold: IDFG does not have an estimate of how many of these purchasers exercised their right to fish for salmon. IDFG estimated in 1997 that salmon anglers spent 60,000 hours (approximately 15,000 trips) to harvest 3,464 non-listed hatchery fish. Recreational salmon fisheries in Idaho waters in 2001 were estimated to produce 124,350 angler trips to harvest 43,300 hatchery-produced chinook salmon out of a return of 140,860 unlisted hatchery fish. The total estimated expenditure by salmon fishermen was $46.2 million (IDFG 2002), with rural communities often benefitting substantially; for example, the 2001 chinook salmon season that targeted fish returning to Rapid River Hatchery was estimated to have accounted for 23 percent of the annual commerce of the town of Riggins (IFWF 2002).

3.8 Environmental Justice

Executive Order 12898 (February 11, 1994, 59 FR 7629) states that Federal agencies shall identify and address, as appropriate "…disproportionately high and adverse human health or environmental effects of [their] programs, policies, and activities on minority populations and low-income populations…." While there are many economic, social, and cultural elements that influence the viability and location of such populations and their communities, the development, implementation, and enforcement of environmental laws, regulations, and policies can also have impacts. Therefore, Federal agencies, including NMFS, must ensure fair treatment, equal protection, and meaningful involvement for minority populations and low-income populations as they develop and apply the laws under their jurisdiction.

In the proposed action area, there are minority and low income populations that this Executive Order could apply to, including Hispanics, Asians, and Native Americans. The U. S. Census Bureau reported the race composition of Idaho residents in 2000 (U.S. Census Bureau 2004) to be 88.0 percent White, 7.9 percent Hispanic, 1.4 percent Native American, 0.9 percent Asian, and 0.4 percent Black. The composition of the angling public as reported in a national survey

does not reflect the smaller minorities (Table 2); however, it is believed that all ethnic groups engage in recreational fishing.

Figure 2 compares the proportion of Idaho residents in each income segment and the proportion participating in recreational fishing. While it is likely that members of all income groups participate in recreational fishing, it appears that there may be few anglers in the low income groups and more in the medium to upper income segments who participate.

The costs of being able to fish legally in Idaho in 2004 are shown in Table 3. The maximum cost to participate in the salmon or steelhead fishery would be if a person bought a license and salmon tag for $35.00, which allows the person to fish in all of Idaho's streams and lakes all year long. The costs of fishing gear and tackle exceed the costs of the fishing license.

Table 2. Idaho resident anglers by ethnicity and race in 2001 (USDI and USDC 2003).

Characteristic	**General Population in Idaho (%)**	**Resident Anglers (%)**
Ethnicity		
Hispanic	10	6*
Non-hispanic	90	94
Race		
White	94	98
Black	5	**
All others	1*	**

* estimate based on a small sample size
** sample too small to report data reliably

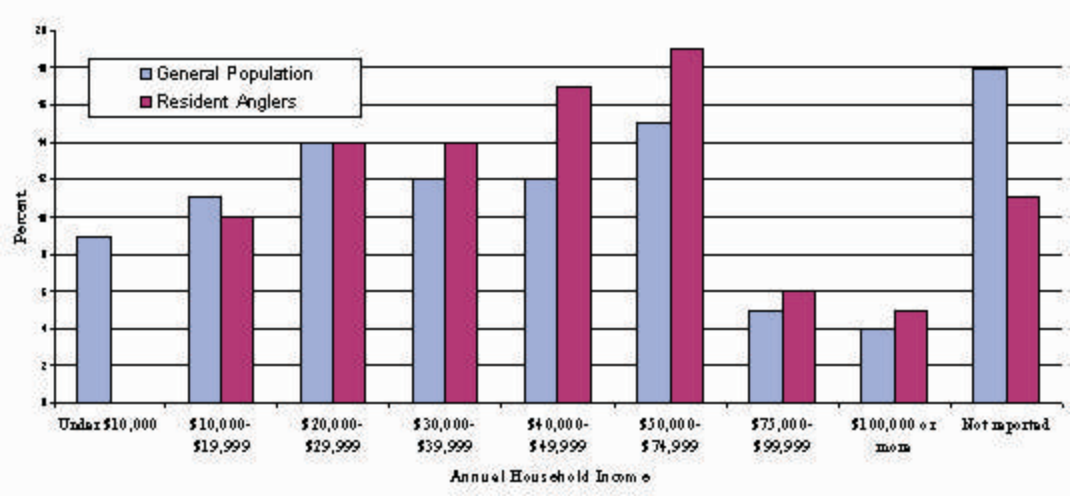

Figure 2. Annual household income of Idaho resident anglers, 2001, in comparison with the general population of Idaho residents (USDI and USDC 2003).

Table 3. Cost of fishing licences and tags for Idaho residents in 2004.

Age Class	Cost of License (U.S. $)	Cost of Salmon or Steelhead Permit	Total Cost to Participate in Proposed Fishery
Adult (18 & older) annual license	23.50	11.50	35.00
Junior (14-17) annual license	12.50	11.50	24.00
Child (under 14) annual license	Free	11.50	11.50
3 day fishing license	28.50	Included in license	28.50

3.9 Tribal Trust Responsibilities and Treaty Rights

The United States has a unique relationship with tribal governments as set forth in the Constitution, treaties, statutes, and Executive orders. This body of statutes, treaties and policies, together with Federal court rulings which interpret them, is commonly spoken of as "Treaty Trust Doctrine." In keeping with this unique relationship and with the mandates of the Presidential Memorandum on Government to Government relations With Native American Tribal Governments (May 4, 1994, 59 FR 22951) and with Executive Order 13084 (Consultation and Coordination With Indian Tribal Governments; May 19, 1998, 63 FR 27655), NMFS developed

and published a section 4(d) rule regarding Tribal resource management on July 10, 2000 (65 FR 42481). Recognizing the unique status of the Treaty Tribes, the Federal Government stated, in the explanatory material accompanying the rule, that the appropriate expression of its trust obligation is a commitment to harmonize its many statutory responsibilities with the tribal exercise of tribal sovereignty, tribal rights, and tribal self determination. While the action considered in this EA is not proposed under the Tribal resource management section of 4(d), the commitment to following trust responsibilities applies.

Dating back to 1855, the Federal government signed treaties with the Nez Perce Tribe, the Shoshone-Bannock Tribes, and the Shoshone-Paiute Tribe reserving rights for traditional tribal uses such as hunting, fishing, and gathering of plant materials on unoccupied public lands and in areas ceded by the tribes to the United States. Much of the state of Idaho includes traditional foraging areas for these tribes.

4.0 ENVIRONMENTAL CONSEQUENCES

This section of the assessment evaluates the potential effects of the alternatives on the biological, physical, and human environments. NMFS' determination to issue a permit could affect a variety of natural and human resources. These effects would be primarily indirect effects of permit issuance, occurring as a result of implementation of activities described in the permit application.

4.1 Alternative 1 (No Action) – Issue No Permit

Under this alternative, no permit for take of listed Snake River spring/summer chinook salmon, fall chinook salmon, steelhead, or sockeye salmon would be issued. It would not be possible for IDFG to implement the fisheries by completely avoiding take of listed salmon, so the implementation of the proposed recreational fisheries would result in the unauthorized take of ESA-listed anadromous fish species. Therefore, the conduct of recreational fishing could not proceed without violating the ESA, and the No Action alternative would effectively prohibit recreational fishing in waters where listed fish might occur.

4.1.1 Effects on Riparian Habitat

Under the No Action alternative, no additional adverse or beneficial impacts of any magnitude on riparian habitat would be expected to occur. While recreational fishing might be restricted, other recreational activities such as wildlife watching, rafting and float-boating, and camping would continue, as would all other land use activities that might affect riparian habitat. The status of the habitat conditions would not change. There is no salmon fishing in the Wilderness areas. No geological impacts would occur.

4.1.2 Effects on Water Quality

The No Action alternative would not be expected to result in either positive or adverse impacts on water quality. Not allowing the proposed fisheries to occur would reduce the number of boats on the water, and potentially somewhat reduce the amount of use of stream-side areas, and therefore reduce the adverse effects of the release of boat engine byproducts, trash, and other effluents into the water. However, because fishing efforts have been low in recent years as a result of sharply constrained fisheries, and adverse effects on water quality from fishery activities are relatively small and localized, the benefits to water quality resulting from the large-scale closure of fisheries would be expected to be negligible. No real improvements in listed 303(d) streams would occur as a result of closing fisheries, because the fisheries themselves have little adverse effect on water quality, and because the more substantial impacts from other activities would continue.

Closing fisheries might be expected to result in more salmon carcasses in and adjacent to riparian areas, but most of the fish that would be caught and retained in the fisheries are hatchery-origin fish that would be expected to return to hatcheries, not the natural environment. The small number of additional natural-origin fish that would reach spawning areas would not be expected to substantially affect the environment, either adversely (due to temporary and localized appearances of compromised water quality) or beneficially (by providing marine-derived nutrients to the ecosystem).

4.1.3 Effects on Anadromous Fish Listed Under the ESA

Under the No Action alternative, recreational fisheries that might directly impact listed salmon and steelhead would not be permitted, and some small improvements in survival of listed species might occur. The number of listed fish taken in recent years' fisheries was relatively small, and the harvest was carefully managed under systems similar to those of the Proposed Action. Based on the analysis in the draft opinion on permit 1481, including the IDFG conservation plan, the conduct of recreational fisheries is not expected to adversely affect any listed population's potential for survival and recovery. Therefore, closing the fishery would not be expected to provide substantial benefits to any population – all four salmon and steelhead ESUs in the Snake River basin listed under the ESA will continue to remain at depressed levels. Recreational fisheries are managed to minimize risk to listed species while providing for the economic, cultural, and social benefits inherent with sustainable recreational fisheries, and the No Action alternative may not meet this goal.

4.1.4 Effects on Other ESA-listed Fish Species

Under the No Action alternative, the other ESA-listed fish species, threatened bull trout, would not be subjected to catch-and-release handling that may occur in the action areas. Fishing regulations are designed to minimize stress or injury to incidental catch, and the difference in impacts between a catch-and-release fishery and no fishery is very small on a population basis (Batt 1996).

4.1.5 Effects on Non-listed Fish Species

Under the No Action alternative, non-listed resident fish species would not be subject to harvest in recreational fisheries. There may be some small benefit to native cutthroat trout by complete closure of the fishery. There is a potential risk to listed and native species by suspending the recreational harvest of certain exotic species that have been introduced into the action area. Brook trout are known to be predators and competitors with juvenile salmon, and fishing regulations are designed to harvest brook trout and to reduce populations. Other species like smallmouth bass, channel catfish, and crappies that potentially prey on juvenile salmonids are removed by recreational anglers, and the fishery managers pay bounties to recreational anglers who catch and kill northern pikeminnow in order to reduce predation on salmon smolts. Brook trout would continue to be present and would continue to exert some amount of competitive pressure upon indigenous species. Benefits to listed species from the pikeminnow sport-reward program would be terminated (Beamesderfer et al. 1996).

4.1.6 Effects on Terrestrial Organisms

Selection of the No Action alternative would probably lead to small reductions in the number of outdoor recreationists and their disturbance of terrestrial organisms. However, other forms of outdoor recreation would continue and other land uses that affect terrestrial organisms would continue.

4.1.7 Effects on Social and Economic Resources

Selection of the No Action alternative would probably leave the proposed recreational fisheries without authorization for incidental take of listed species, effectively prohibiting the conduct of fishing. Loss of recreational fishing would negatively impact the State's economy.

Approximately 450,000 anglers expend 4.5 million days of angling effort in Idaho each year (IDFG 1993). In 1996, 483,459 anglers spent over 4,411,000 angler days fishing in Idaho waters (Maharaj and Carpenter 1997). Angler expenditures of about $280,000,000 generated an economic output of over $461,682,000 and $116,552,000 in worker earnings. These wages and salaries translate into 6,884 full-time equivalent jobs (Maharaj and Carpenter 1997). The recreational fisheries for salmon and steelhead that are considered under the Proposed Action are estimated to add some $180 million to the economy of the state annually and support as many as 5,400 jobs (Reading 1998). Not only are the economic impacts of recreational fishing large, they are distributed throughout rural areas where they provide important employment in small communities (Reading 1998). It is not clear how much of this economic input would be replaced by shifts to other activities (such as fisheries in non-anadromous waters), but it is likely that nearly all of this revenue would be lost if the recreational fisheries could not occur as proposed.

Recreational fishery constraints would result in reduced state revenues from license sales and loss of recreational fishermen. At this time, most of the public information and law enforcement activity that protects listed species and keeps the public aware of the status of listed species is funded by the State using fishing license fee revenues. Most public opinion that supports restoration of anadromous species and protection of critical habitat is generated by anglers and

recreational fishing organizations. Loss of fishermen and their expenditure for fishing would have adverse impacts on retail and recreation industries, including sporting goods retailers, food and lodging providers, and fishing guide services. The extent to which these industries would be adversely affected within the context of the State and regional economies is large, and fishing specialty stores and guide services in communities like Riggins and Salmon, Idaho, would be negatively impacted through loss of customers and tourism.

In addition to the economic effects of recreational fishing, there are important social and cultural values to the lifestyle of the residents of Idaho as well as tourists who travel to Idaho specifically to fish and enjoy outdoor recreation. Not issuing a permit authorizing the conduct of recreational fishing would adversely affect the cultural and lifestyle environment of Idaho residents.

The No Action alternative would be contrary to Federal policy direction to promote compatibility, and reduce conflict, between administration of the ESA and recreational fisheries (June 3, 1996, 61 FR 27978). Given the analysis above and in the draft biological opinion, the proposed fisheries are not expected to have a large adverse impact on the number of listed fish returning to the Snake River basin. Therefore the No Action alternative is not biologically necessary or advisable. This alternative would result in limiting access to harvestable surpluses of hatchery-produced salmon and steelhead that are returning to specific artificial propagation facilities and release sites. The goals of the private, state, and Federal mitigation programs that have developed the artificial propagation programs and supplied harvestable numbers of fish would be thwarted. The No Action alternative would deny the validity of the scientific resource management techniques that have been applied to increase fishing opportunity. The potential social and economic benefits of expanded fishing opportunity would be denied to local cultures and economies that depend upon fishing opportunities in the proposed action area. Monetary and aesthetic benefits would be lost by the economy and culture of small rural communities in the Snake River basin under the No Action alternative.

4.1.8 Environmental Justice

Executive Order 12898 (February 11, 1994, 59 FR 7629) directs Federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. The No Action alternative would disproportionately affect the depressed economies of small rural communities in areas suffering from high unemployment due to depressed timber, mining, and agricultural-based economies. Larger communities, where the economy is based on industry and commerce, would not be as likely to suffer as small rural communities that depend on resource utilization and tourism. Individuals and communities with high annual incomes based on salaries from industry or government would not be affected proportionately as individuals and communities with low income based on tourism, service, and resource utilization (Reading 1998). For example, in Ada County, which is an urban county surrounding the State Capital at Boise, where government and technology are the major aspects of employment, per capita annual income is $27,240, and only 9.1 percent of the residents live below the poverty level. In Lemhi County, a rural county where the county seat is Salmon (population 3,000), and where fishing and tourism is an important

source of income, the per capita income is $15,786 and 15.5 percent of the residents live below poverty levels (IDOC 2004). In December 2003, unemployment in Lemhi County was 8.2 percent compared to the Idaho average of 5.0 percent and Ada County at 3.2 percent (USDL 2004). Adverse effects of fishing restrictions would be greatest on poor, rural communities compared to wealthier, urban communities (IFWF 2002).

4.1.9 Effects on Treaty Trust Responsibilities

The No Action alternative would primarily affect recreational fishing, and treaty tribal fisheries would be likely to continue without alteration. However, tribal resource managers are involved in managing the mitigation programs, which provide harvestable surpluses of hatchery-origin salmon for recreational fisheries. Tribal resource managers also provide recreational fishing opportunities to non-tribal members to share in treaty trust resources on tribal lands. If there was a reason to not allow the State to manage recreational fisheries, the same reason might apply to recreational fisheries offered by the Tribes. In the absence of compelling reasons to deny the program under consideration, particularly given the tribal role in the implementation of the recreational fisheries in tribally-important lands, not issuing a permit for the program could have negative consequences for management of treaty trust resources.

4.2 Alternative 2 (Proposed Action) - Issue a Permit to IDFG for Conduct of Recreational Fisheries

The Proposed Action is to issue ESA section 10(a)(1)(B) incidental take permit 1481 to IDFG for the conduct of recreational fisheries in the Snake River and its tributaries, downstream from Hells Canyon Dam on the Snake River and Dworshak Dam on the North Fork Clearwater River. Three types of recreational fisheries that are anticipated to occur in the Snake River Basin within Idaho in the years 2004-2009 are considered in this EA, including: (1) Resident Fish Species Sport Fishing, conducted under General Fishing Regulations; (2) Anadromous Salmon Sport Fishing, conducted under Anadromous Salmon Fishing Regulations; and (3) Spring and Fall Steelhead Sport Fishing, conducted under Steelhead Fishing Regulations.

4.2.1 Effects on Riparian Habitat

The effects on riparian habitat resulting from issuing a permit that allows conduct of recreational fishing within the range of anadromous fish in the Idaho portion of the Snake River basin would be related to anglers walking along stream banks to access rivers and streams, launching and retrieving watercraft, and camping near streams. Compared to the No Action alternative, there would be more adverse impacts, though not likely to an extent to reduce the habitat's condition. Much of the access to streams is at developed access areas, boat ramps, and adjacent to highways where access is already developed and riparian impacts have occurred. Many other outdoor recreation activities also occur in riparian areas, including float boating, camping, and wildlife watching. Recreational fishing adds a small increment of adverse impact to these other activities. The facilities used in association with river fisheries such as boat ramps and access roads are essentially all in place, and new construction is not anticipated. In the event of a fishing closure, most areas impacted by fisheries access would continue to be used in association with other

similar river activities, such as boating and rafting. Compared to other land uses, such as roads, urban encroachment, flood control and agriculture, fisherman access is a small adverse impact on riparian areas. Fishing is not allowed in Wilderness areas. No effects on geology of the area would be expected.

4.2.2 Effects on Water Quality

Under the Proposed Action, adverse effects on water quality would be slightly higher than under the No Action alternative. Water quality could temporarily be adversely affected by the activities of anglers camping along streams or launching and operating boats. Some additional litter and trash is likely to be deposited in streams by anglers. Water quality effects are expected to be small, temporary and localized. The over-all and long-term adverse effects on water quality resulting from the Proposed Action are expected to be negligible. Because of this, no adverse effects on streams listed or potentially subject to listing under section 303(d) are expected. Because the number of natural spawners that might be taken in the fisheries is small, little or no adverse impact is expected on the availability of nutrients from carcasses.

4.2.3 Effects on ESA-listed Anadromous Fish

Under the Proposed Action, adverse effects on listed anadromous fish are expected to be higher than under the No Action alternative. Recreational fisheries conducted by the State between 2004 and 2009 are expected to result in incidental mortality from capture and release of unmarked listed fish and accidental or illegal retention of listed species that are legally required to be released. Issuance of the proposed permit with conditions specified by NMFS is estimated to have the following effects on survival of listed anadromous fish compared to the No Action alternative:

4.2.3.1 Snake River Spring/Summer Chinook Salmon

Snake River spring/summer chinook salmon would be subject to mortality associated with the proposed additional recreational fishing locations. The actual mortality would vary based on the number of natural listed spring chinook salmon projected to pass above Lower Granite Dam on the Snake River. At very low run sizes (less than 4,000 natural adults), no additional mortality would occur, and at large run sizes (more than 35,601 natural adults) up to 2 percent mortality is estimated (see Table 1). The allowable incidental take mortality of listed spring/summer chinook salmon would be limited by the proposed abundance-based sliding scale that prohibits take at low run sizes and gradually allows increasing incidental take when the listed anadromous salmon that return to the Snake River basin populations approach recovery targets.

4.2.3.2 Snake River Fall Chinook Salmon

Snake River fall chinook salmon would be subject to some mortality associated with the fishery directed at non-listed hatchery-produced steelhead. Up to 10 adult fall chinook salmon might be killed in the steelhead fishery that occurs in the mainstem Snake River and lower Clearwater River, and one fall chinook may be killed in fisheries targeting resident game fish species.

Steelhead fisheries occurring in remaining tributary areas are expected to have no adverse impact on fall chinook salmon. Modification of the permit to allow expanded fisheries that target hatchery spring chinook salmon are expected to have no adverse impact on Snake River fall chinook as the fishery occurs prior to their arrival in the recreational fishing areas. If the catch rate is 1.5 percent (0.015), and the mortality rate of those fish that are handled and released is 10 percent (0.10), then the population impact would be estimated at no greater than 0.15 percent (0.0015). Recent returns of Snake River fall chinook have included about 5,000 natural fish, of which, therefore, 1.5 percent or 75 fish might be caught and 10 percent, or 8 adults, might be fatally injured. The annual mortality of fall chinook salmon is estimated at up to 10 fish in the steelhead fishery and 1 fish in the resident species fishery.

4.2.3.3 Snake River Sockeye Salmon

No capture or mortality of adult sockeye salmon in Idaho recreational fisheries has been reported in the past 25 fishing seasons. Harvest of juvenile anadromous sockeye salmon in the adult steelhead and chinook fisheries is unlikely because they are thought too small to be caught on conventional fishing gear that targets adults. There would be no additional adverse impacts on residual sockeye salmon in lakes from that previously considered (previously estimated at 34 fish annually). As a result, issuance of the fishery permit is expected to have no additional adverse impacts on Snake River sockeye salmon.

4.2.3.4 Snake River Basin Steelhead

The recreational steelhead fishery targets marked hatchery fish and unmarked natural listed fish incidently caught are required to be released. The mortality of listed steelhead results primarily from post-release mortality of fish that have been hooked and released by anglers. The hook and release mortality for steelhead is estimated to be 5 percent of the fish caught and subsequently released back into the stream. The mortality is estimated to be no more than 3.2 percent of the steelhead population arriving in Idaho in the targeted recreational steelhead fishery and up to 5 adults in the spring chinook salmon recreational fishery.

4.2.4 Effects on Other ESA-listed Fish Species

Adverse impacts on threatened bull trout as a result of the Proposed Action are expected to occur. This species is likely to be present in many of the waters within the Snake River basin that are open to the fisheries considered under this EA. Bull trout may not be legally retained in possession, and must be released, unharmed, back to the water if caught (IDFG 2004b). IDFG has engaged in an extensive public information campaign to inform anglers about the status and regulations for bull trout, and the State has adopted a comprehensive bull trout management plan (Batt 1996). The potential for adverse, short-term displacement or handling by anglers for bull trout would be increased compared to the No Action alternative. However, the protective regulations currently in place for bull trout would remain in place as provided in the State's bull trout conservation plan (Batt 1996). In reviewing the status of bull trout, the USFWS determined that State fishing regulations that protect bull trout as well as wild trout of other species and listed anadromous salmonids were adequately protective, and therefore incidental take of bull trout associated with recreational fisheries is not prohibited (June 10, 1998, 63 FR 31647). Due

to the broad, cross-basin nature of the proposed fisheries, no adverse effects on bull trout migratory ability or population segment connectivity is expected under the Proposed Action.

4.2.5 Effects on Non-listed Fish Species

Compared to the No Action alternative, issuance of the Idaho recreational fisheries permit is expected to have increased adverse impacts on non-listed fish species. Under the Proposed Action alternative, non-listed resident fish species would be subject to harvest in recreational fisheries. There would be additional fishing directed at species like native cutthroat trout. However, IDFG has adopted regulations designed to provide sustainable fisheries and to protect native species and sensitive populations (IDFG 2004b; IDFG 2000). There is a potential benefit to listed and native species from increasing the recreational harvest of certain exotic species that have been introduced into the action area. Brook trout are known to be predators and competitors with juvenile salmon, and fishing regulations are designed to harvest brook trout and to reduce brook trout populations. Other species like smallmouth bass, channel catfish, and crappies that potentially prey on juvenile salmonids are removed by recreational anglers, and the fishery managers pay bounties to recreational anglers who catch and kill northern pikeminnow in order to reduce predation on salmon smolts (Beamesderfer et al. 1996). Scientific recreational fishery management seeks to harvest in a sustainable fashion, to adjust the balance among species, and to protect sensitive species and life stages.

4.2.6 Effects on Terrestrial Species

Compared to the No Action alternative, adverse impacts on terrestrial species from the Proposed Action are expected to be increased by a small degree at most. IDFG estimates that nearly 450,000 anglers spend nearly 4.5 million days in pursuit of recreational fishing opportunities each year (see subsection 3.7). Review of IDFG reports indicates that about 10 percent of Idaho anglers prefer salmon and steelhead fishing over other types of recreational fisheries and between 10 and 20 percent of the angling effort is directed at these species (IDFG 2000). IDFG estimates that steelhead anglers spend 310,000 to 350,000 days annually and salmon fishermen spend 55,000 to 125,000 days, depending on numbers of returning fish and open seasons (Scott Marshall, IDFG, pers. comm., March 15, 2004). The total of 365,000 to 475,000 days is in the range of 8 percent to 10.5 percent of the total 4.5 million days fished each year. Issuing a permit that authorizes several hundred-thousand days of fishing activities is likely to have additional adverse impacts on the habitat of terrestrial organisms, ESA-listed or unlisted, compared to the No Action alternative. There is likely to be temporary and localized displacement of some terrestrial organisms by anglers during the pursuit of the fishing opportunity covered by the proposed permit. However, in the context of other outdoor recreation that would be taking place at the same time and place as fishing, and the other impacts on terrestrial organisms and their habitat from land use, transportation corridors, and other human activities, the additional increment of disturbance from anglers would not be measurable on a population or basin-wide basis.

4.2.7 Effects on Social and Economic Resources

Compared to the No Action alternative, the impacts on social and economic resources from the Proposed Action are expected to be beneficial. The IDFG estimates that approximately 450,000 anglers expend nearly 4.5 million days of angling effort in Idaho each year (IDFG 1993). In 1996, 483,459 anglers spent over 4,411,000 angler days fishing in Idaho waters (Maharaj and Carpenter 1997). Angler expenditures of about $280,000,000 generated an economic output of over $461,682,000 and $116,552,000 in worker earnings. These wages and salaries translate into 6,884 full-time equivalent jobs (Maharaj and Carpenter 1997).

Steelhead fishing is an important part of Idaho's culture and economy. In the 11 years from 1986 to 1996, an average of more than 32,000 season steelhead tags (and required fishing licenses) were sold in Idaho. In addition, an average of 3,200 3-day permits were sold annually from 1988 to 1996 and steelhead tags were sold as part of the Sportsman package starting in 1988 (from 2,188 in 1989 up to 13,375 in 1995). Steelhead anglers harvested about 30,000 steelhead in approximately 186,000 angler days, annually, from 1969-1996. In the 2001-2002 season, the total was 310,000 days to harvest 100,000 fish (Scott Marshall, IDFG, pers. comm.). Reading (1996) reported that recreational steelhead fishing in Idaho during the 1992-1993 season was responsible for over $90 million in expenditures and 2,700 jobs. Furthermore, Reading (1996) projected that restored salmon fishing would produce about $60 million in economic activity and directly create 1,000 jobs (and another 800 jobs through secondary effects) (IDFG 1998). In an analysis of data from the 1997 chinook season, Reading (1998) estimated chinook salmon anglers would spend an estimated $72 million a year in Idaho and support nearly 700 jobs in Idaho's rural communities.

In 1997, 5,985 season salmon tags, and 243 3-day salmon tags were sold. In addition, 13,904 Sportsman Packages, which contain the salmon tag, were sold: IDFG does not have an estimate of how many of these purchasers exercised their right to fish for salmon. IDFG estimated in 1997 that salmon anglers spent 60,000 hours (approximately 15,000 trips) to harvest 3,464 non-listed hatchery fish. Recreational salmon fisheries in Idaho waters in 2001 were estimated to produce 124,350 angler trips to harvest 43,300 hatchery-produced chinook salmon out of a return of 140,860 unlisted hatchery fish. The total estimated expenditure by salmon fishermen was $46.2 million (IDFG 2002).

Recreational fishing for trout, bass, and other resident game species is also important to local economies. Overall, recreational fishing provides substantial income and important employment opportunities in remote rural communities located in the Snake River basin. A precise estimate of the economic benefit from issuing the proposed permit for recreational fishing is not available, and the impact may vary between years as recreational fishing opportunity expands or contracts in response to large or small adult return numbers. The proposed permit would result in some increase in fishery opportunity and, therefore, would be expected to increase income and employment opportunity in some local areas compared to the No Action alternative and similar to current conditions.

4.2.8 Environmental Justice

Executive Order 12898 (February 11, 1994, 59 FR 7629) directs Federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. Compared to the No Action alternative, the Proposed Action alternative would be expected to be more responsive to the intent of the executive order, as all groups would share equally in the economic and cultural benefits of recreational fishing. The costs of a fishing license appear to be reasonable and are not likely to disproportionately affect low income people. Recreational fishing provides substantial income and important employment opportunities in remote, rural communities located in the Snake River basin. Under the Proposed Action alternative, increased fishing opportunities may result as compared to the No Action alternative. These fishing opportunities would be available to all population segments. Tribal harvest and subsistence fishing opportunities, and potential opportunities for low-income and minority persons, could increase, due to the large proportion of low income persons in the rural communities that depend more on tourism and recreational fishing. The Proposed Action is not expected to adversely affect human health of any population located in the action area.

4.2.9 Effects on Treaty Trust Responsibilities

The Proposed Action is more responsive to Treaty Trust responsibilities and policies than the No Action alternative. As explained above in subsections 1.1 and 3.9, the Federal Government has an obligation to work collaboratively with the Tribes to facilitate management of treaty trust resources. The native Indian Tribes of Idaho also offer recreational fishing opportunity to both members and non-members to share in enjoyment of fisheries that are based on treaty trust resources. If the opportunity to provide recreational fisheries was denied to the State, it might also be questioned for tribal fisheries. Therefore, permit issuance would likely be consistent with tribal management of trust resources.

4.3 Alternative 3 - Issue a Permit Without Conditions

Issuing the permit with no additional conservation conditions attached would be expected to have biological and environmental impacts similar to those discussed under the Proposed Action alternative. Policies adopted by the Idaho Fish and Game Commission and State statutes as implemented by IDFG place a high priority on conservation actions to protect native species, anadromous salmonids, and aquatic habitats (IDFG 2000). Conservation measures adopted by the IDFG would not be expected to change if there were no requirements and conditions in the permit. However, NMFS' ability to monitor the fishery effects and to document compliance with the ESA would be limited without conditions requiring in-season and post-season reporting. The action of reviewing and analyzing the conservation plan and formalizing the conservation measures as permit conditions ensures that the most current conservation science is applied and that risks to the continued survival and recovery of listed species are carefully monitored and managed.

Without restrictive conditions, there could be the potential for the biological impacts on listed Snake River spring/summer chinook salmon to increase. One of the integral conditions associated with the Proposed Action Alternative is the recreational fishery harvest impact sliding scale that varies based on the number of Snake River spring/summer chinook salmon passing Lower Granite Dam (see Table 1). Under this alternative, the recreational fishery harvest impact sliding scale would not apply, resulting potentially in greater mortality to listed Snake River spring/summer chinook. At some level of increased impacts, it is likely that fishery harvest would be contrary to the survival and recovery of ESA-listed species, although it is not likely that IDFG would continue to manage fisheries at that level. It is not likely that there would be a much greater number of anglers or fishing trips under this alternative.

4.3.1 Effects on Riparian Habitat

The effects of this alternative, compared to the Proposed Action and No Action alternatives, would be similar to the Proposed Action. Similar numbers of anglers would continue to make a similar number of fishing trips so that effects on riparian habitat would be the same between this alternative and the Proposed Action.

4.3.2 Effects on Water Quality

The effects of this alternative, compared to the Proposed Action and No Action alternatives, would be similar to the Proposed Action. Similar numbers of anglers would continue to make a similar number of fishing trips so that effects on water quality would be the same between this alternative and the Proposed Action. While this alternative would likely have greater adverse effects on water quality than the No Action alternative, over-all and long-term effects on water quality resulting from this action would be expected to be negligible.

4.3.3 Effects on ESA-listed Anadromous Fish

The effects of this alternative, compared to the Proposed Action and No Action alternatives, would be similar to the Proposed Action. Similar numbers of anglers would continue to make a similar number of fishing trips. The State would likely adopt similar protective regulations that are consistent with state policies and statutes that require sustainable fisheries and protection of native species and anadromous fish. There is potential that the State would allow higher impacts on some listed anadromous stocks. While recreational fisheries are carefully managed by the State to be conservative, it is possible that providing greater fishery opportunity by increasing impact rates on anadromous stocks could risk reducing the likelihood of survival and recovery of certain components of the listed stocks. With a permit in place, the State would not necessarily be in violation of the ESA, but without permit reporting conditions, the degree of compliance with ESA goals and purposes would not be measured or documented, and information important to future planning and management wouldn't necessarily be collected.

4.3.4 Effects on Other ESA-listed Fish Species

The effects of this alternative, compared to the Proposed Action and No Action alternatives, would be similar to the Proposed Action. Similar numbers of anglers would continue to make a similar number of fishing trips so that effects on bull trout would be the same between this alternative and the Proposed Action. The potential for adverse, short-term displacement or handling by anglers for bull trout would be increased compared to the No Action alternative. However, the protective regulations currently in place for bull trout would remain in place as provided in the State bull trout conservation plan (Batt 1996).

4.3.5 Effects on Non-listed Fish Species

The effects of this alternative, compared to the Proposed Action and No Action alternatives, would be similar to the Proposed Action. Similar numbers of anglers would continue to make a similar number of fishing trips, and resident fishing regulations would not be likely to change if there were no permit conditions (IDFG 2004a). The IDFG would likely continue to utilize prudent and scientific fishery management techniques responsive to their statutory mandate to provide continued supplies of fish for sustainable fishing (Section 36-103, Idaho Code) although, as discussed above, the degree of compliance with conservation objectives wouldn't necessarily be clear, as important information would not necessarily be collected.

4.3.6 Effects on Terrestrial Species

As with the other aspects of the affected environment, the effects of this alternative, compared to the Proposed Action and No Action alternatives, would be similar to the Proposed Action. Adverse impacts on terrestrial organisms, ESA-listed or unlisted, would be expected to be no greater than under the Proposed Action or No Action alternatives. There is likely to be temporary and localized displacement of some terrestrial organisms by anglers during the pursuit of the fishing opportunity covered by the proposed permit. However, in the context of other outdoor recreation that would be taking place at the same time and place as fishing, and the other impacts on terrestrial organisms and their habitat from land use, transportation corridors, and other human activities, the additional increment of disturbance from anglers would not be measurable on a population or basin-wide basis.

4.3.7 Effects on Social and Economic Resources

Compared to the No Action alternative, the impacts on social and economic resources from Alternative 3 are expected to be beneficial, and similar to impacts under the Proposed Action. Similar numbers of anglers would continue to make a similar number of fishing trips, with economic and social impacts similar to those described in subsection 4.2.7.

4.3.8 Environmental Justice

Executive Order 12898 (February 11, 1994, 59 FR 7629) directs Federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. Compared to the No Action alternative, this alternative would be expected to be more responsive to the intent of the executive order, as all groups would share equally in the economic and cultural benefits of

recreational fishing. This alternative would have impacts most similar to the Proposed Action alternative with increased fishing opportunities compared to the No Action alternative. These fishing opportunities would be available to all population segments. Potential opportunities for low-income and minority persons could increase. This alternative would not be expected to affect human health of any population located in the action area.

4.3.9 Effects on Treaty Trust Responsibilities

The effects of this alternative, compared to the Proposed Action and No Action alternatives, would be similar to the Proposed Action. In contrast to the No Action alternative, this alternative is more responsive to treaty trust doctrine.

5.0 CUMULATIVE IMPACTS

Other Federal, tribal, and State actions are expected to occur within the Snake River basin and in the migration corridor between the Snake River and the Pacific Ocean that would affect the fish populations considered in the Proposed Action. State and tribal fisheries occur in Oregon and Washington portions of the Snake River basin and in the mainstem Columbia River. Land management and water use decisions that affect these populations are made inside and outside the Snake River basin. There are overarching concerns and legal mandates for the recovery of listed salmon and steelhead populations in the Columbia River basin, at the same time there are social and cultural needs for sustainable fisheries and sustainable economic use of resources.

There are numerous initiatives by State, Federal, tribal, and private entities designed to restore salmon and steelhead populations. Federal actions for salmon recovery in the Columbia River basin that are currently underway include initiatives by the Northwest Power and Conservation Council (NPCC) to mitigate impacts of the Federal Columbia River Power System (FCRPS). NPCC initiatives include development of sub-basin plans in support of regional planning and recovery efforts. State initiatives include recently passed legislative measures to facilitate the recovery of listed species and their habitats, as well as the overall health of watersheds and ecosystems. Regional programs are being developed that designate priority watersheds and facilitate development of watershed management plans. Several tribes have developed a joint restoration plan for anadromous fish in the Columbia River basin, known as the Wy-Kan-Ush-Mi Wa-Kish-Wit or Spirit of the Salmon plan. All of these regional efforts are expected to help increase salmon and steelhead populations in the action area because of compatible goals and objectives.

The proposed Idaho recreational fishery activities in the Snake River basin are also designed with a mandate for sustainable resource use under both Federal and State law and policy. Fisheries that may impact listed salmon and steelhead within the action area are managed based on the impact to listed fish that are returning to the Snake River. Because the allowable impacts on listed species are based on an abundance-based sliding scale, or maximum allowable incidental impact rate, if other conservation measures are unsuccessful in returning fish to the area, fishery impacts would be constrained. The sliding scale has the effect of measuring the cumulative

success of all other efforts to restore salmon populations and to provide numbers of fish in excess of conservation needs. If the cumulative effects of other fisheries or conservation efforts do not allow sufficient escapement of returning adult salmon and steelhead to the Snake River to meet conservation needs plus support a fishery, recreational fishing would be constrained or closed.

If the cumulative effects of salmon management efforts fails to provide harvestable fish, then impacts due to recreational fishing in the Snake River would not be allowed. Therefore, the cumulative impacts of NMFS' current Proposed Action are expected to be minor, because of reporting and monitoring requirements that would ensure compatibility with other conservation strategies. Within the action area, there are expected to be beneficial effects on the biological and human environments associated with the application of scientific fishery management to provide for sustainable benefits from recreational fishing. Conservative management of recreational fishing is only one element of a large suite of regulations and environmental factors that may influence the overall health of listed salmon populations and their habitat. The recreational fishing program is coordinated with monitoring and adaptive management measures so that fishery managers can respond to changes in the status of affected listed salmon. Monitoring and adaptive management would help ensure that the affected ESUs are adequately protected and would help counter-balance any potential adverse cumulative impacts.

6.0 AGENCIES CONSULTED

National Marine Fisheries Service
U.S. Fish and Wildlife Service
Idaho Department of Fish and Game

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